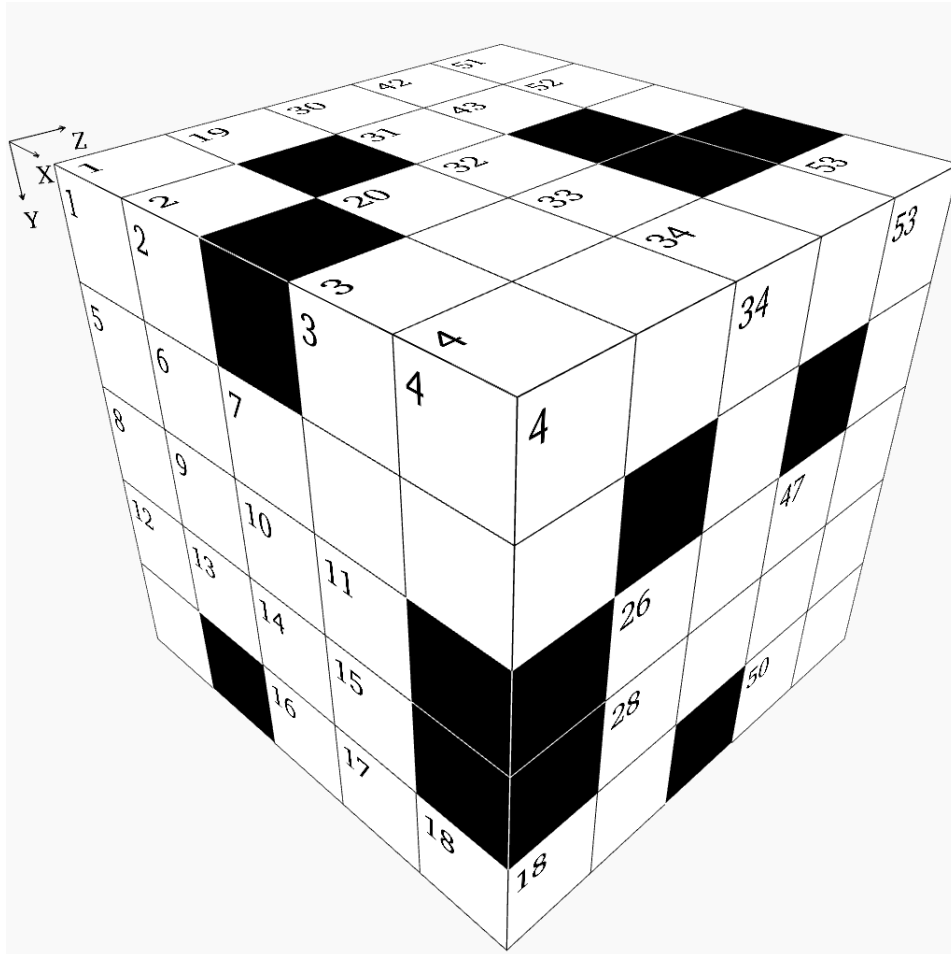


# Cube - Challenging Puzzle #21



This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

## Rules:

1. "Words" may not start with a zero.
2. "Words" in the X direction read from left to right.
3. "Words" in the Y direction read from top to bottom.
4. "Words" in the Z direction read from front to back.
5. There is one unique solution which satisfies all the clues given below.
6. Some "words" may not have clues. They will be determined by the "words" which intersect them.

If we take the cube pictured above and divide it into individual X-Y layers, we will get these planes:

1	2		3	4	19		20			30	31	32	33	34
5	6	7			21	22				35			36	
8	9	10	11			23	24	25	26	37				
12	13	14	15		27				28	38			39	
		16	17	18			29			40	41			

42	43				51	52			53
44			45		54			55	
		46		47	56		57		
		48			58				
	49			50	59				

### X Direction

- 1 Z50 plus Y19
- 3 Sum of digits in Y26
- 5 Y47 times Z50
- 8 A prime number
- 12 Forty-three times a prime number
- 16 X51 minus Z16
- 20 X1 plus X54
- 21 Mean of X44 and X38
- 23 Nineteen times Y32
- 27 Six thousand one hundred twenty-five more than Z4
- 29 Seventeen times a prime number
- 30 First two digits are the same as first two digits of Z13
- 35 Twenty-four times a prime number
- 37 Thirty-five times a prime number
- 38 Mean of X42 and X44
- 39 Mean of Z18 and X20
- 40 X35 minus Z10
- 42 Z41 minus half of Z48
- 44 X3 plus Z50
- 46 Mean of Y24 and Y19
- 48 Three times a prime number
- 49 X44 minus Z50
- 51 Seven times X39
- 54 Mean of X38 and Z50
- 55 Y43 reversed
- 56 Nine thousand three hundred ninety-eight more than X35
- 58 X59 plus Y46
- 59 Eleven thousand one hundred sixty-nine more than Z11

### Y Direction

- 1 Fifty-six times a prime number
- 2 Twenty-six times X29
- 3 Nine hundred eighty-five less than Z16
- 4 X46 minus X54
- 7 Eighty-seven times a prime number
- 19 X20 minus X1
- 22 Y32 plus half of X51
- 24 Mean of Y47 and Z50
- 25 Twice a prime number
- 26 Nine times a prime number
- 30 Fifty-eight times a square
- 31 Three times a prime number
- 32 A square
- 33 Z4 plus X48
- 34 X23 minus Z36
- 42 Last two digits are the same as last two digits of Z41
- 43 Mean of Z20 and X44
- 45 Twenty-four times X49
- 46 Z20 times X3
- 47 Rearranged digits of X46
- 51 Fifteen times a prime number
- 52 Seventeen times a square
- 53 A prime number
- 55 Eight times X16
- 57 Two-thirds of Y26

### Z Direction

- 1 Twice the result of Y1 minus Z6
- 3 Mean of Z50 and Y24
- 4 Thirteen times a prime number
- 5 Y52 plus X21
- 6 X23 plus Z10
- 9 Twice the result of Z28 minus Y7
- 10 Six thousand nine hundred eighteen less than Z11
- 11 Mean of Y51 and Y53
- 12 X56 plus X12
- 13 Z17 plus X16
- 14 X42 minus Z20
- 15 First two digits are the same as first two digits of Y25
- 16 Twice a prime number
- 17 Z9 minus Y46
- 18 Mean of X49 and X39
- 20 Z31 minus Z9
- 26 Two thousand eight hundred fifty-one less than Y3
- 28 Forty-nine times a prime number
- 31 Y25 minus X44
- 36 A square
- 37 Twice the result of X46 plus Y24
- 41 Y32 minus Z20
- 48 Y43 plus X42
- 50 Y22 divided by X55

**Solution:**

7	8		1	8	4		1	2	3	8	9	1	8	1
1	3	6	2	9	5	4				3	4	2	4	8
8	9	3	3			2	2	9	9	7	0	1	0	5
4	8	5	9		8	9	2	8	6	5	7		8	8
8		1	7	5			3	2	3	2	1	3	2	

6	3			6	6	1	6		1
5	1		4		4	5		1	3
1		1	3	4	4	3	6	4	6
0		9	2	1	5	0	4	0	1
	1	8		3	5	0	2	0	3